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AUTHOR High, Robert V.
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ABSTRACT

This paper reports on the results of a survey instrument designed to measure the use of mathematics software packages, as well as statistical software packages in the college classroom. The survey was distributed to teachers of mathematics and statistics at several four-year colleges in Long Island, New York. The survey also measured the opinions and attitudes of the faculty towards the use of computer software to supplement their teaching. It was found that a majority of professors teaching statistics were utilizing statistical packages to supplement their teaching. However, only 21% of the mathematics professors responding to the survey indicated using mathematical software to supplement their teaching. A majority of both statistics professors and mathematics professors indicated they used and required the students to use calculators in the classroom. (Author)

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The Use of Computer Software

In the Teaching of College Mathematics

And Statistics

by Robert V. High, Ph.D.

School of Business

Adelphi University

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This paper reports on the results of a survey instrument designed to measure the use of mathematics software packages, as well as statistical software packages in the college classroom. The survey was distributed to teachers of mathematics and statistics at several four-year colleges in Long Island, New York. The survey also measured the opinions and attitudes of the faculty towards the use of computer software to supplement their teaching. It was found that a majority of professors teaching statistics were utilizing statistical software packages to supplement their teaching. However, only 21% of the mathematics professors responding to the survey indicated using mathematical software to supplement their teaching. A majority of both statistics professors and mathematics professors indicated they used and required the students to use calculators in the classroom.

INTRODUCTION

As computers become more prevalent in society, they are finding their way into the classroom in greater numbers. There is much research being done on the use of the Internet in the classroom and for educational purposes in general (see for example, Braun (1997), Coutts (1996), and Hack & Smey (1997)). There are also many studies investigating the use of the computer and computer software in the public school classroom (for example, see Schultz (1989), Cain (1995), Squires (1994)), as well as articles evaluating various statistical packages for use in the classroom (for example, Webster (1992)). Also, in a previous study (High & Marcellino (1997)) examined the extent to which computer usage was referred to in the mathematics classroom and the opinions of both public school and college faculty towards the use of computers for educational purposes.

This study was designed to examine the use of mathematical software packages in the college classroom. Additionally, it looked at the use of statistical software packages in the teaching of college statistics.

THE SURVEY INSTRUMENT

A survey instrument was designed to measure the amount of computer software usage in the college mathematics classroom, as well as the extent to which statistical software was being utilized in the teaching of college statistics.

The survey was distributed to mathematics faculty at five four-year colleges in Long Island, New York. Additionally, copies were distributed at the same colleges to faculty teaching statistics in the business school and the psychology department, as well as several other departments offering a course in statistics.

In total 185 survey instruments were distributed and 42 (23%) were returned. It is this sample of 42 completed surveys that form the basis of the current study.

RESULTS

Of the 42 completed surveys, 18 of them were returned from faculty teaching statistics and the remaining 24 were from mathematics faculty not normally teaching statistics.

In the group of 18 respondents who were teaching statistics, 10 (56%) of them indicated that they required the students to learn and use a statistical software package for the course. Of the remaining 8 professors who did not require the use of a statistical package, half of them (4) indicated that they taught the basics of a software package to the students and supplemented their presentations with computer printouts which were distributed to the students for classroom analysis. The remaining 4 (22%) professors indicated that they did not utilize a software package in their teaching of statistics.

Of the group of professors who used a statistical software package, all of them indicated that the college provided access to computers and the required software for the student's use. In each case, the student also had

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the option of purchasing a student version of the software for use on their home computer.

Of the 4 who were using a statistical package for illustrative purposes, all of them indicated that they were anticipating greater use of the software in the future, including requiring the use by students. In the group of 4 professors indicating that they did not use a software package, only one foresaw such usage in the near future. The remaining three indicated they would continue teaching statistics without the use of any software package.

In the group of 24 mathematics professors, only 5 (21%) indicated using a software package in conjunction with their teaching. All five indicated that the students were not required to purchase the program. The use of software in the classroom centered on demonstrations and did not include assignments for the students to complete using the software. Many of the professors indicated that their schools were equipped with a mathematics laboratory that contained mathematical software, but mostly mathematics majors used this.

In this group of mathematics professors, 11 (46%) indicated they were planning greater use of mathematical software in the near future, including the possibility of requiring the students to use the software. Other respondents were not as positive about the use of mathematical software. One of the criticisms was that it took too long to teach the students how to use the software. Additionally, it was pointed out that for as popular as computers are, many students have limited exposure and do not own computers themselves. This would then make the use of software in the classroom more time consuming and take valuable time away from the course content.

The one thing the statistics professors and mathematics professors agreed upon was the use of calculators in the classroom. The professors indicated that they used calculators and encouraged students to utilize calculators in their work. Most required the students to have a calculator, and all encouraged it.

DISCUSSION

The teaching of statistics has seen a major change in the past ten years with the introduction of statistical software. Typical software packages include a student version of SPSS, MINITAB, as well as many other packages from different developers. Most professors now utilize both a calculator in the classroom and statistical software both in and out of the classroom.

Mathematics, on the other hand, has not experienced the widespread acceptance of computer software. Many professors are still not utilizing software, although most use a calculator in the classroom. The most common complaint against the mathematical software seems to be the issue of time. It takes time to teach the usage of the software and many mathematics professors do not see the utility of the software.

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